

Enabling HANs to Interconnect

Standards-based Communication

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May 13, 2005



Agenda



- Cross-Jurisdiction Alerting & Communication Challenges
- Using Standards enables a Solution
- Brokering and Mapping yields Results
 - ✓ Audiences → Roles
 - ✓ User Stories → Rules & Message Structure
 - ✓ Common vocabulary → Knowledge
- Los Angeles and SLHIC Proof of Concept
- A user interface for HAN and non-HAN audiences
- Focus on building working systems

Defining the Challenges



- **HANs vision was to meet local internal needs not to communicate with external partners**
- **Establishing MOUs to document alert protocols and policies between States and Federal partners has not occurred and is not feasible**
- **Two-way communication implementations have been problematic:**
 - **Not supported on both sides**
 - **Firewall, security and audit concerns**
 - **Want to “know” what will be done with your message before you send it**
 - **Different capabilities, technologies at different times**
- **A solution is needed that incorporates policies, protocols and procedure for alerts between States and from States to CDC**

PHIN/HAN Standards Provide the Framework to Meet the Challenges



Establishing Standards:

- Alerting levels, vocabularies, the definitions and related business rules
- Role based messaging that crosses Federal, State and Local levels
- Message delivery policies and protocols
- Support for the Common Alerting Protocol (CAP) standard messaging structure, implementation of subset(s) based on user stories

Common Alerting Protocol Standard

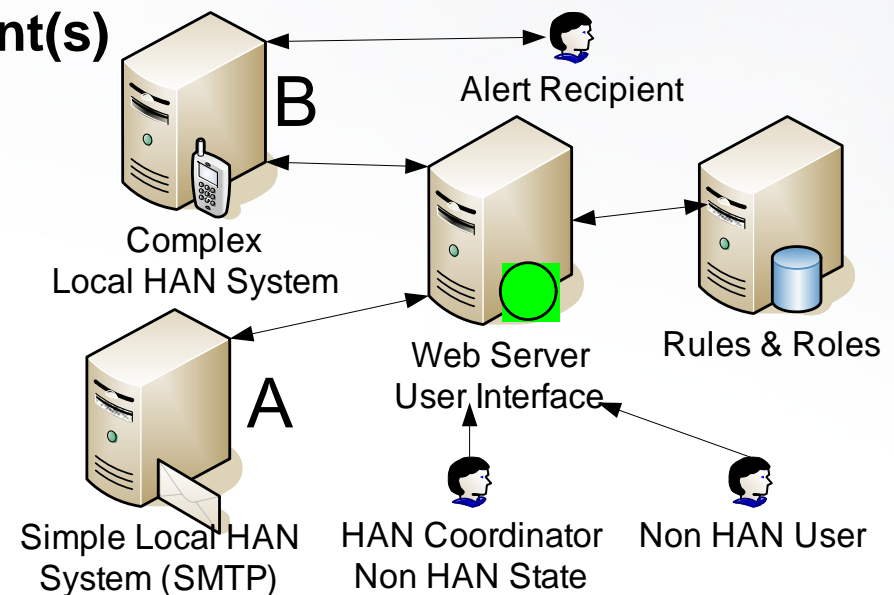


- **CAP establishes the template for messaging transport that requires:**
 - **Role based Alert delivery**
 - **Consistent content for event description and requested actions**
 - **Criteria pertaining to the event:**
 - **Alert level, severity, urgency, certainty**
 - **Control number, source of message, effective date/time**
 - **Target population**
 - **Location**

Overview HAN-Connect Functionality



- **State A sends a message to HAN-Connect to reach State B**
 - ✓ The message is in State A's standard format and includes all CAP fields
- **The message broker maps the message to the CAP format and structure**
 - ✓ This also converts State A roles in the message to the Standard Roles
 - ✓ This "CAP message" is mapped to State B format and Roles
 - State B "Business Rules" are applied to direct the message accordingly
- **The Alert is sent to State B based upon State B Rules & Roles**
- **State B utilizes it's HAN to alert the recipient(s)**
 - ✓ State B receives acknowledgement of the alerts
 - ✓ State B sends report to HAN-Connect
- **SLHIC posts acknowledgement report**
 - ✓ A notice of the report posting is sent to State A
- **States and other Authorized to Alert non-HAN users are able to Initiate Alerts through the User Interface**



Standardization of Roles



- **Roles relate to the functional responsibility and authority that have been assumed or assigned to a person or persons.**
- **Gaining agreement on these definitions is essential in linking communications between jurisdictions and business partners.**
- **Mapping the roles to the standard resolves issues regarding systems changes and naming terminology differences .**
- **StateA can reach StateB's roles by each mapping to HAN Standard Roles.**

State A Specific Roles	HAN Standard Roles	State B Specific Roles
Director Department of Health	Public Health Officer	State Health Officer
Responsible for the direction and administration of the jurisdiction's Health Services. Has legal authority to declare and enforce a quarantine.		
BT Grant Manager	Terrorism Coordinator	BT Coordinator
Responsible for the administration of all BioTerrorism related activities within the jurisdiction		
HAN Coordinator	HAN Coordinator	PHIN Coordinator
Responsible for the coordination, implementation and maintenance of the public health alert and information network for the agency or jurisdiction		
Public Health Laboratory Director	Laboratory Director	State Lab Director
Responsible for the coordination of the laboratory testing and reporting for the agency or jurisdiction		

CAP Message Standardization



- A HAN systems' ability to send, receive and process messages is dependent upon many factors such as local and Off-the-Shelf vendor issues.
- Requiring each State to adapt their systems to generate and receive the CAP compliant message would be costly and difficult to maintain
- Mapping the message to the standard resolves issues regarding systems changes
- StateA can reach StateB's system by each mapping to the CAP Alert Message Standard from their systems output

CAP Alert	Description	StateA Alert	StateB Alert
Identifier	Unique # assigned by sender for message	Control	Accession
Sender	The OID of the organization sending the alert	Origination	Sender
Sent	Alert origination date and time	Sent	Sent
Status	Code for handling of alert – actual, test..	Type	Category
Msg Type	Code for message type – Alert, Update, Cancel, Error..	Level	Msg Type
Scope	Code denoting the intended method for distribution	Delivery	Sent

Administrative Tools Enrolling Partners



Each State will be able to view Partner Shortcuts only for their State.

The Admin Utilities are accessible only by those designated as a State Admin. Screen shots of the Enrollment, Role, Message and Vocabulary Mapping are presented in the following slides.

System Configuration is viewable by SLHIC Administrators.

SLHIC HAN Connect Project version: 1.0.1 (04/21/2005)

Select From the Options on the Left

Partner List (Returned 2 Records)

[New](#) [Print](#) [Refresh](#)

Partner [Search](#) [Reset](#)

Actions	Partner Name	Name	Address	City
	Los Angeles County	David Cardenas	313 Figueroa Street, Room 200	Los Angeles
	Nevada	Bob Hall		

Administrative Tools Enrollment Dialog



Partner Form - Microsoft Internet Explorer

Partner Form
Fields marked with * are required and must match their patterns.

General	Partner Name:	Los Angeles County
Connection	Contact Info	
PHIN	Name:	David Cardenas
	Address:	313 Figueroa Street, Room 200
	City:	Los Angeles
	State:	<input type="text"/>
	ZIP:	90210
	E-Mail:	dcardenas@ladhs.org
	Phone:	(213)123-4455

Save Cancel Reset

Partner Form - Microsoft Internet Explorer

Partner Form
Fields marked with * are required and must match their patterns.

General	PHIN Agency ID:	CA-LOSANGELES-COUNTY
Connection	PHIN CAP Compliant:	No
PHIN		

Cancel Reset

Partner Form - Microsoft Internet Explorer

Partner Form
Fields marked with * are required and must match their patterns.

General	Incoming (to SLHIC)	
Connection	Method:	FTP
	Address:	ftp://mbr.slhlc.org/ca-losangeles-county/in
PHIN	Function:	
	Frequency:	5
	Unit:	Minutes
	Account:	ca-losangeles-county
	Password:	
	Outgoing (to Partner)	
	Method:	FTP
	Address:	ftp://mbr.hasten.ladhs.org/slhic/in
	Function:	
	Frequency:	5
	Unit:	Minutes
	Account:	slhic
	Password:	

Save Cancel Reset

Administrative Tools

Role Map



SLHIC HAN Connect Project - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Address http://www.slhic.org/slhicconnect/
Google

SLHIC HAN Connect Project version: 1.0.1 (04/21/2005)
Select From the Options on the Left
Home
Logout
Partner Shortcuts
My Profile
My Messages
New Message
Reports
Export Data
Admin Utilities
Partner Enrollment
Reports
Export Data
Codesets
Codes
Codeset Mapping
System Configuration
Reports & Extract
Setup Screens
Setup Datasources
Manage Files
Manage Groups
Manage Privileges
Event Log
Global Settings

Partner Summary
Partner Name: Los Angeles County
PHIN Agency ID: CA-LOSANGELES-COUNTY
Partner Rules (Returned 13 Records)

Roles Map **Elements Map**

Actions	Local Role	Local Code	Address	PHIN Role
	BT Coordinator	BTC	LDAP://cn=BT Coordinator,ou=Alertable Roles,dc=hasten,dc=han,dc=local	BioTerrorism Coordinator
	Chief EPI	CEPI	LDAP://cn=Chief EPI,ou=Alertable Roles,dc=hasten,dc=han,dc=local	Chief Epidemiologist
	Chief EPI	CEPI	LDAP://cn=Chief EPI,ou=Alertable Roles,dc=hasten,dc=han,dc=local	Communicable or Infectious Disease Coordi
	HAN Coordinator	HANC	LDAP://cn=HAN Coordinator,ou=Alertable Roles,dc=hasten,dc=han,dc=local	Health Alert and Communications Coordinat
	General Alerts Mailbox	GAM	mailto:alerts@hasten.ladhs.org	Behavioral Health Director
	General Alerts Mailbox	GAM	mailto:alerts@hasten.ladhs.org	Chief Veterinarian
	General Alerts Mailbox	GAM	mailto:alerts@hasten.ladhs.org	Emergency Management Coordinator
	General Alerts Mailbox	GAM	mailto:alerts@hasten.ladhs.org	Emergency Medical Services Authority
	General Alerts Mailbox	GAM	mailto:alerts@hasten.ladhs.org	Emergency Training Coordinator
	General Alerts Mailbox	GAM	mailto:alerts@hasten.ladhs.org	Environmental Health Director

Partner Role Mapping - Microsoft Internet Explorer
Partner Role Mapping
Fields marked with * are required and must match their patterns.
Local Role: HAN Coordinator
Local Code: HANC
Address: LDAP://cn=HAN Coordinator,ou=Alertable R
PHIN Role: Health Alert and Communications Coordinator

Administrative Tools Message Structure Map



SLHIC HAN Connect Project - Microsoft Internet Explorer
Address: http://www.slhic.org/slhicconnect/
Google

SLHIC HAN Connect Project version: 1.0.1 (04/21/2005)
Select From the Options on the Left

Home
Logout
Partner Shortcuts
My Profile
My Messages
New Message
Reports
Export Data
Admin Utilities
Partner Enrollment
Reports
Export Data
Codesets
Codes
Codeset Mapping
System Configuration
Reports & Extract
Setup Screens
Setup Datasources
Manage Files
Manage Groups
Manage Privileges
Event Log
Global Settings

Partner Summary
Partner Name: Los Angeles County
PHIN Agency ID: CA-LOSANGELES-COUNTY
Partner Rules (Returned 21 Records)
New Refresh
Roles Map **Elements Map**

Actions	Local Element	Local Codeset Name
X		
X		
X	alert_expires	
X	alert_mood_cd	LACDHS_HAN_ALERT_MOODS
X	alert_type_cd	LACDHS_HAN_ALERT_TYPE
X	sensitivity_cd	CDCPHINSENSITIVITY
X	severity_cd	CDCPHINSEVERITY
X		N
X	subject	
X	body	

Partner Element Mapping - Microsoft Internet Explorer
Partner Element Mapping
Fields marked with * are required and must match their patterns.
Local Codeset Name: LACDHS_HAN_ALERT_TYPE
Local Element: alert_type_cd
Static Value:
PHIN Element: type_cd
PHIN Codeset Name: CDC PHIN Message Type
Static Value:
Save Cancel Reset

Administrative Tools Vocabulary Map



SLHIC HAN Connect Project - Microsoft Internet Explorer

Address: http://www.slhic.org/slhicconnect/

SLHIC HAN Connect Project version: 1.0.1 (04/21/2005)

Select From the Options on the Left

Home
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Export Data
Codesets
Codes
Codeset Mapping
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Reports & Extract
Setup Screens
Setup Datasources
Manage Files
Manage Groups
Manage Privileges
Event Log
Global Settings

Codeset Mappings (Returned 7 Records)

New Refresh

Source System: CDC PHIN Message Status Search Reset Clear

Destination System: LACDHS_HAN_ALERT_MOODS

Actions	Source System	Source Code	Destination System	Destination Code
X [icon]	CDCPHINMESSAGESTATUS	Actual	LACDHS_HAN_ALERT_MOODS	Alert
X [icon]	CDCPHINMESSAGESTATUS	Exercise	LACDHS_HAN_ALERT_MOODS	Training Exercise
X [icon]	CDCPHINMESSAGESTATUS	Test	LACDHS_HAN_ALERT_MOODS	Test
X [icon]	LACDHS_HAN_ALERT_MOODS	Info	CDCPHINMESSAGESTATUS	Actual
X [icon]	LACDHS_HAN_ALERT_MOODS	Alert	CDCPHINMESSAGESTATUS	Actual
X [icon]	LACDHS_HAN_ALERT_MOODS	Training Exercise	CDCPHINMESSAGESTATUS	Exercise
X [icon]	LACDHS_HAN_ALERT_MOODS	Test	CDCPHINMESSAGESTATUS	Test

Done Local intranet

Proof-of-Concept Catalysts to Fill the Gap

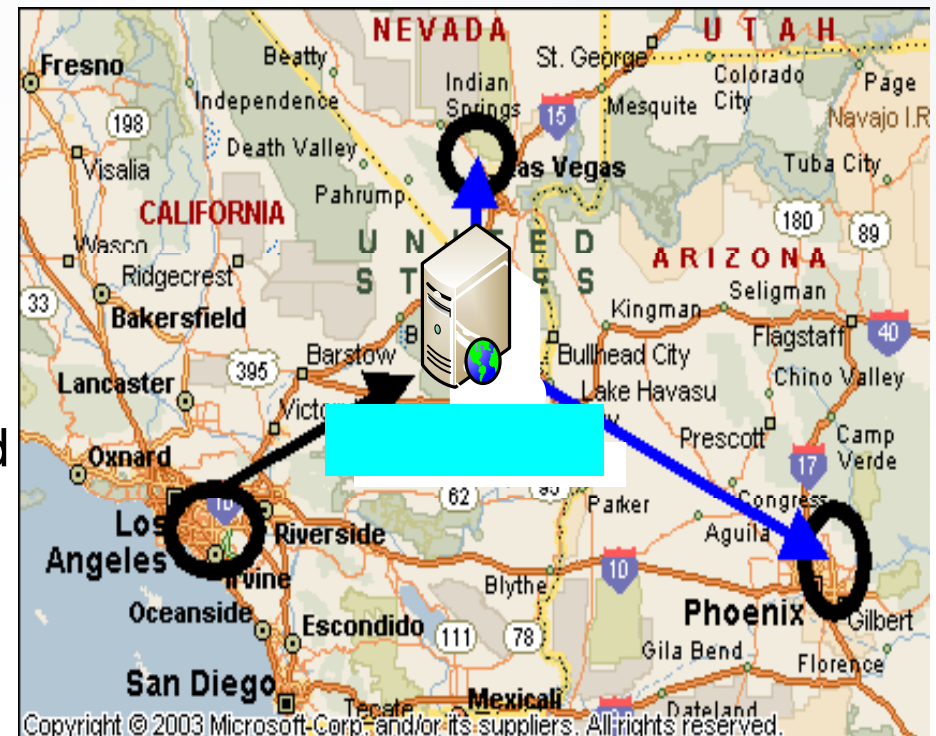


- **Los Angeles DOH requires a secure and structured means to alert California DOH and other partners**
- **HAN to HAN communications is a consistent topic of HAN teleconferences, HAN, PHIN and SLHIC Conferences**
- **The POC deals directly with the gap between the vision of PHIN interoperability the real world need of production systems today**
- **The HAN-Connect POC will provide immediate feedback and clarity to States and Jurisdictions on:**
 - ✓ **Best practices and lessons learned concerning PHIN Standards,**
 - ✓ **CAP,**
 - ✓ **Cascading Alerts and**
 - ✓ **Partner Communications and Alertin**
- **This service will assist and accelerate opportunity for States and Jurisdictions to adopt the standards that will result in PHIN Interoperability**

How the HAN-Connect is used



- Los Angeles Department of Health
 - Within Los Angeles a family has contracted a highly contagious **respiratory flu** after returning from a reunion in Las Vegas
 - As a result of the EPI investigation there are families that were exposed to the flu in Las Vegas and Phoenix
- Public Health Officials in Los Angeles along with Nevada and Arizona need to be notified
 - LA HASTEN is used to notify the appropriate local public health roles
 - The HASTEN System is used to generate a CAP compliant alert to Arizona and Nevada containing the roles to be notified, the alert level and all other required fields.
 - The Alert is sent to Nevada and Arizona via the HAN-Connect



May 13, 2005

Complex HAN System



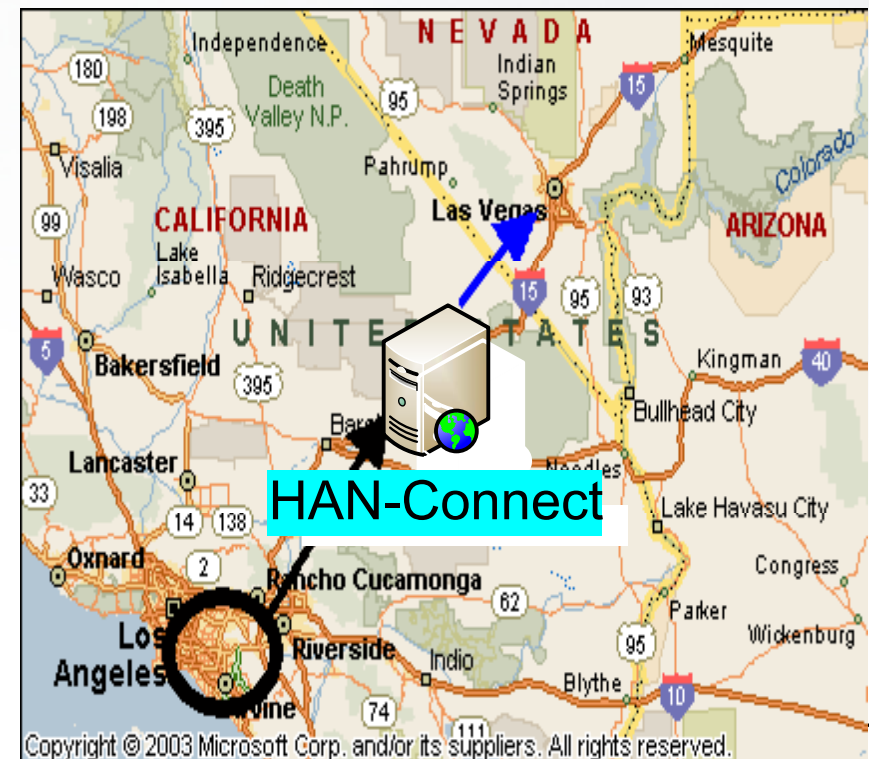
- Arizona using HAN-Connect Administrative tools:
 - Mapped Roles, Applied business Rules and Mapped the message format
- The Los Angeles Alert passes via HAN-Connect-MS
 - The Arizona mapping and business rules are applied to the Alert
 - **As a result of the Business Rules applied to the message the Alert is directed to the State Health Officer, State Epi and in addition to the role notification request by Los Angeles, the HAN Coordinator will be alerted.**
 - All actions are logged and the Alert is sent to Arizona
- The Alert is processed through SIREN
 - Roles are Alerted.
 - the alert is cascaded to the appropriate local PH roles
- An alert acknowledgment report is generated and sent to HAN-Connect
 - Los Angeles is notified upon posting of the Acknowledgement Report in SLHIC



Simple HAN or Non HAN Partner



- Nevada HAN-Connect Administrative tools:
 - Mapped Roles, Applied business Rules
 - Added the Public Health Roles to the Directory along with those filling the roles with contact information
- The Nevada Alert passes via HAN-Connect-MS
 - The Nevada mapping and business rules are applied to the Alert
 - All actions are logged and the Alert is sent directly to the roles identified.
- The Alert is processed through HAN-Connect to the Health Officer and State Epidemiologist
 - The Health Officer contacts the HAN Coordinator to alert the appropriate local PH roles
- An alert acknowledgment report is generated and sent to HAN-Connect
 - Los Angeles is notified upon posting of the Acknowledgement Report in SLHIC



Manual Alert Created Through HAN-Connect



Three screenshots of the 'New Message' form in Microsoft Internet Explorer, showing the process of creating a manual alert.

Top Left Screenshot: Envelope Tab

Field	Value
PHIN UID:	NV-2005429-001
Sender:	Nevada
Recipient:	Los Angeles County
Status:	Actual
Type:	Alert
Sensitivity:	Yes
Severity:	Extreme
Acknowledgement Required:	Yes

Top Right Screenshot: Content Tab

Intended Audience:

Required Actions:

Sharing Instructions:

Follow Up Time:

Delivery Window Re:

Jurisdiction:

Jurisdiction Level:

Bottom Screenshot: Content Tab

Role: Chief Epidemiologist

Message Title: Contagious Flu Outbreak


Message Content: Within Los Angeles a family has contracted a highly contagious respiratory flu after returning from a reunion in Las Vegas. As a result of the EPI investigation there are family that were exposed to the flu both Las Vegas and Phoenix.

Creation Time: 3/1/2005

Scheduled Delivery Time: 3/1/2005

Alert Processed by HASTEN in LA





1. Select the recipients of this alert.
2. Select the contacts you wish to authorize the alert.
3. Select the contacts to be notified of alerts final disposition.
4. Create message and set the message type.
5. Review and Approve Alert.
6. Monitor alert status.

Review and Confirm Alert

Alert Id: f28a7103-021f-4aaa-869b-d1c3c56399a7

Owner: CA-LOSANGELES-COUNTY

Status: Alert Expired

Date/Time: 3/1/2005 2:37:31 PM

Mean Stats:

Number of authorizations selected: 0
Number of confirmed authorizations: 0
Number of required confirmed authorizations: 0
Number of authorizations completed: 0

Number of recipients selected: 4
Number of confirmed recipients: 2
Number of recipients completed: 4

Subject: Contagious Flu Outbreak

Message: Within Los Angeles a family has contracted a highly contagious respiratory flu after returning

Id	Confirmations	Status
----	---------------	--------

Id	Recipients	Status
1	David Cardenas	Confirmed
17490	Peter Krouse	Confirmed
17491	Desk, Alex	Expired

Id	Notifications	Status
----	---------------	--------

[Print View](#) [Forward Alert](#) [View All Alerts](#)

Alert Acknowledgement sent to Nevada via SLHIC



Message Details and Acknowledgment - Microsoft Internet Explorer

Message Details And Acknowledgment

Fields marked with * are required and must match their patterns.

Acknowledgment Status:	<input checked="" type="checkbox"/>
Acknowledgment Time:	5/9/2005 1:35:00 AM
Acknowledged By:	AZ
Completion:	Status Time: 3/1/2005 2:37:31 PM SUMMARY Number of recipients: 4 Recipients confirmed: 2 Recipients Completed: 4 DETAILS David Cardenas: Confirmed Peter Krouse: Confirmed
PHIN UID:	CA-LOSANGELES-COUNTY-20050429-001
Sender:	1
Recipient:	2
Status:	Actual
Type:	Alert
Sensitivity:	Yes
Severity:	Extreme
Acknowledgement Required:	No
Message Title:	Contagious Flu Outbreak
Message Content:	Within Los Angeles a family has contracted a highly contagious respiratory flu after returning from a reunion in Las Vegas. As a result of the EPI investigation there are family that were exposed to the flu both Las Vegas and Phoenix.

Save Cancel Reset

Non-HAN Acknowledges through the Alert Status Results Report via SLHIC HAN-Connect



SLHIC HAN Connect Project - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Links Hotmail MSDN owa TechNet T-Mobile WF

Address http://www.slhic.org/slhicconnect/

Google

SLHIC
State and Local Health Informatics Consortium

SLHIC HAN Connect Project version: 1.0.1 (04/21/2005)

Select From the Options on the Left

- Home
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- Codes
- Codeset Mapping
- System Configuration
- Reports & Extract
- Setup Screens
- Setup Datasources
- Manage Files
- Manage Groups
- Manage Privileges
- Event Log
- Global Settings

Partner Messages (Returned 2 Records)

Print Refresh

Actions	PHIN UID	Sender	Recipient	Status	Type	Severity
Print	NV-20050429-001	2	1	Actual	Alert	Extreme
Print	CA-LOSANGELES-COUNTY-20050429-001	1	2	Actual	Alert	Extreme

Message Details and Acknowledgment - Microsoft Internet Explorer

Message Details And Acknowledgment

Fields marked with * are required and must match their patterns.

Acknowledgment Status: ☐

Acknowledgment Time: 5/9/2005 01:43

Acknowledged By: AZ

Completion:

PHIN UID: NV-20050429-001

Sender: 2

Recipient: 1

Status: Actual

Save Cancel Reset

Business Keys for Success



- **Simplicity and Independence**
- **Communications based on adopted Standards**
- **Secure with logs and audit trails**
- **Immediate participation**
 - ✓ **Manual Web interface for issuing alerts**
 - ✓ **Mapping external roles and notification**
 - ✓ **Can receive and process “simple” alerts (i.e. email) from systems**
 - ✓ **Per partner interfaces – changes in one partner’s connection format, security or structure does NOT require all partners to change**
 - ✓ **Implementing with multiple sites to provide redundancy and continuity of service**

Technical Keys for Success



- **Vendor neutral – Ability to Map to Standards**
- **Uses standards as appropriate (SOAP, XML, SMTP, CAP, PHIN-MS)**
- **HTTPS Lightweight transport minimizes firewall issues**
- **Contents encrypted en-route with 3DES w/highest key strength as default**
- **Exposes and consumes web-services for system integration**
- **Provides web-page interface for users w/o rich/complex HAN system**

Questions



Thank you,

- If you have further questions or are interested in piloting the HAN-Connect System please contact:

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